J Nepal Health Res Counc 2020 Jul-Sep;18(48): 551-5

DOI: https://doi.org/10.33314/jnhrc.v18i3.2851

Students' Perspective on Online Medical Education Amidst The COVID-19 Pandemic in Nepal

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ABSTRACT

Background: The lockdown strategy adopted to contain the spread of current pandemic of coronavirus disease has affected all sectors of life globally. Nepal also instructed all the educational institutions to shut down, medical colleges being no exception. One month into the lockdown all the medical colleges in Nepal started online classes to keep pace with the academic calendar. This preliminary survey analyses the students' perspective on newly introduced online medical education system.

Methods: This cross-sectional survey used an online questionnaire typed in Google forms. The link to the survey was then emailed to the student representative of each semester of Lumbini Medical College, Palpa, Nepal, who were then instructed to forward it to their classmates. The questionnaire consisted of demographic variables and perspective of medical undergraduates towards online classes and also a space to comment or opine their perspective on current medical education.

Results: A total of 226 students responded the survey. Almost one-third of the students (n=173, 76.5%) admitted of never having attended the online classes. Most of the students used smartphones to attend online classes; broadband internet service being the source of internet in 65.5%. Two-third of the students rated online classes to be poorer than the traditional classroom teaching and 77.8% of the students preferred traditional classroom teaching in future.

Conclusions: Medical students did not find online classes as effective as the traditional classroom teachings; it could be made more interactive and productive by introducing interactive and brainstorming sessions complementing the conventional face□to□face education.

Keywords: COVID-19; medical education, Nepal; online education; virtual education

INTRODUCTION

Medical education has been disrupted worldwide due to the current pandemic of coronavirus disease (COVID-19).[1] To reduce the disease transmission and 'flatten the curve,' all educational institutions including medical colleges were closed.[2,3] Owing to the vast undergraduate medical syllabus and the pressure to complete it within the academic calendar, medical colleges in Nepal resorted to online classes.[3] The swift implementation of nascent online classes led to a very new experience for both the students and the educators.[4] While medical students are showing a respectful social responsibility during the current pandemic, the future doctors are not prepared for online learning at the comfort of their home. They are losing direct contact with the teachers, and have limited facilities required for coping with online classes. This preliminary survey analyzes the students' perspective on the newly developed online medical learning system in Nepal.

METHODS

A cross-sectional questionnaire-based survey was administered online to medical students of Lumbini Medical College Teaching Hospital (LMCTH), Nepal.

The total number of current medical undergraduates (excluding interns) in Lumbini Medical College is 480. Using the formula $n = [z^2 * p * (1 - p) / e^2] / [1 + (z^2 * p * (1 - p) / (e^2 * N))]$; confidence level at 95% (z-score=1.96), population proportion at 50% and confidence interval at 5%, the sample size was calculated to be 214. A structured questionnaire was designed in English

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language. Face validity of the questionnaire was done by getting it reviewed by faculty members of pre-clinical subjects for double, confusing and leading questions. The questionnaire was pre-tested among 20 nursing students who were attending online classes (~10% of sample size). The questionnaire was typed in Google Forms in and the link was sent through email to the student representative of each semester. The student representative was then asked to forward the link to their classmates through the social media platform, (Viber chat group of their respective semester, Facebook messenger and WhatsApp messenger). Participation was free, voluntary and anonymous; no payment or gift was provided to the participants. The objective of the study was explained in the introduction to the questionnaire. All the consenting students were allowed to proceed to answer the questions and complete the survey. The questionnaire consisted of demographic variables and perspective of medical undergraduate towards online classes. Acceptance of responses was done till the required sample size was obtained. The link to questionnaire was circulated among the students on 10 May, 2020. On 14 May, the number of responses received were 226 after which the link was disabled from accepting further responses. The responses thus obtained were downloaded in Microsoft Excel spread sheet, which were then exported into SPSS v16 and analyzed.

The study was approved by the Institutional Ethics and Research Committee of LMCTH vide the letter Ref: IRC-LMC 03-D/020.

RESULTS

The study was conducted among 226 undergraduate medical students who participated to complete the survey during the study period. It was observed that female respondents were slightly more than the male respondents (n=123, 54.4%) majority of whom (78.3%) belonged to the age group of 20-24 years (Table 1). The mean age of the respondents was 21.29 ± 1.78 years. Maximum respondents (80%) were 7th semester students. LMCTH is affiliated to Kathmandu University which has yearly intake of students for the MBBS course.

Table 2 depicts the students' preparation for learning through online classes. Almost one third of the students (n=173, 76.5%) admitted to never having attended the online classes previously. 65.5% of students stated of not having books or notes to revise what was being taught online. Learning materials were provided before or after the online classes as per the responses received from 53.5% of the students. The free version of e-books available over the internet was downloaded only by 64.6% of the students. More than half (55.8%) of the students did not go through chapters or lessons from e-books before or after the online classes.

Table 1. Demographic characteristics of participants (N =226).

Variables		Frequency (%)
Gender	Male	103 (45.6)
	Female	123 (54.4)
Age (in years)	<20	40 (17.7)
	20-24	177(78.3)
	>24	9 (4)
Current semester	1st semester	47 (20.8)
	3rd semester	41 (18.1)
	5th semester	32 (14.2)
	7th semester	75 (33.2)
	9th semester	31 (13.7)

Table 2. Learning preparation through online class (N=226).

Items in the questionnaire	Response n(%)	
	Yes	No
Have you previously attended online classes?	53 (23.5%)	173 (76.5%)
Do you have books and notes with you to follow up and revise what had been taught during online classes?	78 (34.5%)	148 (65.5%)
Are you provided with the learning material before/after your online class?	121 (53.5%)	105 (46.5%)
Have you downloaded the e-books available over the internet for free?	146 (64.6%)	80 (35.4%)
Have you gone through the chapters/ lessons from the e-books before or after classes?	100 (44.2%)	126 (55.8%)

Table 3 illustrates the means adopted by the students to attend the online classes and their perception about online classes. Most of the students (69.5%) used smartphones to attend online classes, followed by laptops (39.8%). Broadband internet service was the source of internet to attend online classes in 65.5% of the students. It was found that 34.5 % of the students attended online classes using mobile data. Three-fourths of the students (74.3%) rated online classes to be poorer than the traditional classroom teaching. If the students

were to choose between online classes and traditional teaching, 77.8% of the students preferred traditional classroom teaching.

Table 3. Means of attending online classes and students' perception (N=226).

Items in the questionnaire		Response n(%)
What device do you use to attend online classes?*	Desktop	03 (1.5%)
	Laptop	90 (39.8%)
	Smartphones	157 (69.5%)
	Tablets/ I-pads	19 (8.4%)
What is the source of internet to attend online classes?	Broadband internet service provider	148 (65.5%)
	Mobile data (2G, 3G, 4G)	78 (34.5%)
How do you rate your online classes?	As good as traditional (classroom) teaching	45 (19.8%)
	Better than traditional (classroom) teaching	13 (5.8%)
	Poorer than traditional (classroom) teaching	168 (74.3%)
If given an option in the future to choose between traditional classroom teaching and online classes, what would you opt for?	Traditional classes	176 (77.8%)
	Online classes	25 (11.1%)
	Don't know	25 (11.1%)

*Multiple responses

DISCUSSION

To limit the spread and to contain the virus causing COVID-19 pandemic, Kathmandu University halted all the ongoing examinations and classes on 20 March 2020. On 24 March 2020, the Government of Nepal imposed a nationwide lockdown. One month into the lockdown there was an uncertainty on how long the lockdown would continue. The universities and deemed to be universities instructed their affiliate medical colleges to begin online classes to catchup with the academic calendar from mid-April 2020.[3] LMCTH, where the present study was conducted is affiliated to Kathmandu University. The students who were habituated to structured daily learning activities from 'traditional' lectures had a sudden shift to online classes through the Zoom video communications application.[5]

More than three-fourths of the students responded to have never attended online classes before the COVID-19 pandemic. The students who had attended online classes earlier had done so as not part of the medical curriculum. Although the replacement of traditional in-person classes with online classes is a sine qua non in the current scenario, the lack of experience for both the students and the teachers can be a significant detriment to education.[6]

After the sudden closer of medical colleges, the students, who moved to their home, were uncertain about the duration of lockdown. These students were unequipped with their learning materials in the form of textbooks and notes. Going through the lesson prior and after the classes would help them grasp the subject matter better. However, in the present scenario, the students were left empty handed and their books and notes were lying in the shelves of their hostel rooms. Link to the online classes scheduled was sent to students' group to join their respective classes.

The link prepared for scheduled classes may be delivered late to the students. The chance of missing a part of lecture is possible due to delay in joining the classes. New approach to use internet to take classes and difficulty in adopting the application as teaching modality would certainly hamper the classes. This applies especially to the teachers and students who are not well adjusted to computer and internet usage. Dropped calls and pauses, poor audio or video quality are important issues that disturb the classes often. In the online setting, students may have less oversight and more distractions, unable to keep their motivation high.

The monsoon season in Nepal lies between June and August with heavy downpour and thunderstorms. These are one of the reasons for frequent power cuts leading to interruption of classes and irregular attendance of the students.

Lack of basic know how of digital learning applications for both the students and the teachers is one of the many challenges faced.[7] With sudden rise in the subscribers, applications like Zoom video communications are the targets of bot attacks. The internet shared by all the family members compromised with the speed which would pixelate the video quality and dropped audio calls. The quick start of online classes without prior preparation and training of the teachers on online teaching pedagogy could explain the reasons for most students not enjoying online learning. This could be an explainable reason for the majority of students in the present study opining the traditional classroom

teaching to be better and would not opt for online classroom teachings if given an option. Most students were unable to find online classes effective as the result of delivering a "traditional experience" in two different environments. Rather the redesigning of the content to utilize the advantages of each environment is necessary.[8]

Clinical teachings at bedside, laboratory skills, problem-based learning, and community field learning are not possible with the online teaching format.

Passing through the history of medical education, the comfort in traditional classroom is more among students and teachers. The direct face to face interactive sessions during lecture, eye contacts and body language are crucial to engage students in active learning.[9] The integration of all these learning methods is required for medical students to become successful lifelong learners and practitioners.[10]

Medical education holds the system of continuous assessment throughout the academic year. Assessment during online learning is a great challenge. In the modern era, assessment is linked with learning and skill development of the students, rather than grades and marks.[11] To maintain students' performance according to their competency, assessment system can be developed.

The present study observed that nearly one-third of the students relied upon mobile internet data to attend online classes.

The subscription of mobile internet data in Nepal is costly; it costs around Rs 45 for 1 GB of data used.[3] The poor network coverage in the rural mountainous region of the country, where there is no broadband internet service, students are faced with difficulty. The provision of discounted internet, if not free, to access online learning for all the students would ease the financial burden of expensive internet and attendance of students might increase in the online classes.[12]

Most of our students used a smartphone as the learning device. Using smartphones to attend lectures have made learning more flexible and easier. The use of smartphones among medical professionals has become universal in both clinical and academic settings.[13]

Instead of halting medical education to a standstill, we need to continually train medical students to be competent doctors. With every crisis there comes an opportunity. In this adverse situation we can utilize this adversity as the opportunity to develop the platform for online medical education in Nepal. In addition to the online lectures, video conferencing can be used to demonstrate medical procedures and surgical techniques. Students should be encouraged to use online resources for individual learning.

The present study is not without limitations. As the response to the survey was anonymous, the authors did not know if there was any double entry by the students. The data incorporated the students' perspective from a single institution. Lack of similar studies from Nepal limit the ability to compare and evaluate the present findings with other medical colleges within the country. Researchers and educators should open up to conduct extensive research on the effectiveness of the online learning format, employing better research designs and in larger sample size including students from more medical colleges.

CONCLUSIONS

As popularly said, something is better than nothing, the present online education has made students get in touch with their syllabus and teaching-learning session. Although, medical students did not find online classes as effective as the traditional classroom teachings, it could be made more interactive and productive by introducing interactive and brainstorming sessions complementing the conventional face-to-face education. Assessing the availability of basic resources and facilities from the students' perspective is required for effective online learning. Online teaching pedagogy training, interactive sessions, introducing a good learning management system will obviously take a lead to improve the online medical education.

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